

## SEQUENCE LISTING

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<120> ISOFORMS OF HUMAN CALCIUM SENSING RECEPTOR

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 atg ggg gag cag gtg acc ttt gat gag tgt ggt gac ctg gtg ggg aac	1152
Met Gly Glu Gln Val Thr Phe Asp Glu Cys Gly Asp Leu Val Gly Asn	
370 375 380	
 tat tcc atc atc aac tgg cac ctc tcc cca gag gat ggc tcc atc gtg	1200
Tyr Ser Ile Ile Asn Trp His Leu Ser Pro Glu Asp Gly Ser Ile Val	
385 390 395 400	
 ttt aag gaa gtc ggg tat tac aac gtc tat gcc aag aag gga gaa aga	1248
Phe Lys Glu Val Gly Tyr Tyr Asn Val Tyr Ala Lys Lys Gly Glu Arg	
405 410 415	
 ctc ttc atc aac gag gag aaa atc ctg tgg agt ggt ttc tcc agg gag	1296
Leu Phe Ile Asn Glu Glu Lys Ile Leu Trp Ser Gly Phe Ser Arg Glu	
420 425 430	
 gtg ccc ttc tcc aac tgc agc cga gac tgc ctg gca ggg acc agg aaa	1344
Val Pro Phe Ser Asn Cys Ser Arg Asp Cys Leu Ala Gly Thr Arg Lys	
435 440 445	
 ggg atc att gag ggg gag ccc acc tgc tgc ttt gag tgt gtg gag tgt	1392
Gly Ile Ile Glu Gly Glu Pro Thr Cys Cys Phe Glu Cys Val Glu Cys	
450 455 460	
 cct gat ggg gag tat agt gat gag aca gat gcc agt gcc tgt aac aag	1440
Pro Asp Gly Glu Tyr Ser Asp Glu Thr Asp Ala Ser Ala Cys Asn Lys	
465 470 475 480	
 tgc cca gat gac ttc tgg tcc aat gag aac cac acc tcc tgc att gcc	1488
Cys Pro Asp Asp Phe Trp Ser Asn Glu Asn His Thr Ser Cys Ile Ala	
485 490 495	
 aag gag atc gag ttt ctg tgc tgg acg gag ccc ttt ggg atc gca ctc	1536
Lys Glu Ile Glu Phe Leu Ser Trp Thr Glu Pro Phe Gly Ile Ala Leu	
500 505 510	
 acc ctc ttt gcc gtg ctg ggc att ttc ctg aca gcc ttt gtg ctg ggt	1584
Thr Leu Phe Ala Val Leu Gly Ile Phe Leu Thr Ala Phe Val Leu Gly	
515 520 525	

gtg ttt atc aag ttc cgc aac aca ccc att gtc aag gcc acc aac cga	1632
Val Phe Ile Lys Phe Arg Asn Thr Pro Ile Val Lys Ala Thr Asn Arg	
530 535 540	
 gag ctc tcc tac ctc ctc ttc tcc ctg ctc tgc tgc ttc tcc agc	1680
Glu Leu Ser Tyr Leu Leu Leu Phe Ser Leu Leu Cys Cys Phe Ser Ser	
545 550 555 560	
 tcc ctg ttc ttc atc ggg gag ccc cag gac tgg acg tgc cgc ctg cgc	1728
Ser Leu Phe Phe Ile Gly Glu Pro Gln Asp Trp Thr Cys Arg Leu Arg	
565 570 575	
 cag ccg gcc ttt ggc atc agc ttc gtg ctc tgc atc tca tgc atc ctg	1776
Gln Pro Ala Phe Gly Ile Ser Phe Val Leu Cys Ile Ser Cys Ile Leu	
580 585 590	
 gtg aaa acc aac cgt gtc ctc ctg gtg ttt gag gcc aag atc ccc acc	1824
Val Lys Thr Asn Arg Val Leu Leu Val Phe Glu Ala Lys Ile Pro Thr	
595 600 605	
 agc ttc cac cgc aag tgg tgg ggg ctc aac ctg cag ttc ctg ctg gtt	1872
Ser Phe His Arg Lys Trp Trp Gly Leu Asn Leu Gln Phe Leu Leu Val	
610 615 620	
 ttc ctc tgc acc ttc atg cag att gtc atc tgt gtg atc tgg ctc tac	1920
Phe Leu Cys Thr Phe Met Gln Ile Val Ile Cys Val Ile Trp Leu Tyr	
625 630 635 640	
 acc gcg ccc ccc tca agc tac cgc aac cag gag ctg gag gat gag atc	1968
Thr Ala Pro Pro Ser Ser Tyr Arg Asn Gln Glu Leu Glu Asp Glu Ile	
645 650 655	
 atc ttc atc acg tgc cac gag ggc tcc ctc atg gcc ctg ggc ttc ctg	2016
Ile Phe Ile Thr Cys His Glu Gly Ser Leu Met Ala Leu Gly Phe Leu	
660 665 670	
 atc ggc tac acc tgc ctg ctg gct gcc atc tgc ttc ttc ttt gcc ttc	2064
Ile Gly Tyr Thr Cys Leu Leu Ala Ala Ile Cys Phe Phe Phe Ala Phe	
675 680 685	
 aag tcc cgg aag ctg ccg gag aac ttc aat gaa gcc aag ttc atc acc	2112
Lys Ser Arg Lys Leu Pro Glu Asn Phe Asn Glu Ala Lys Phe Ile Thr	
690 695 700	
 ttc agc atg ctc atc ttc ttc atc gtc tgg atc tcc ttc att cca gcc	2160
Phe Ser Met Leu Ile Phe Phe Ile Val Trp Ile Ser Phe Ile Pro Ala	
705 710 715 720	

tat gcc agc acc tat ggc aag ttt gtc tct gcc gta gag gtg att gcc	2208
Tyr Ala Ser Thr Tyr Gly Lys Phe Val Ser Ala Val Glu Val Ile Ala	
725 730 735	
atc ctg gca gcc agc ttt ggc ttg ctg gcg tgc atc ttc ttc aac aag	2256
Ile Leu Ala Ala Ser Phe Gly Leu Leu Ala Cys Ile Phe Phe Asn Lys	
740 745 750	
atc tac atc att ctc ttc aag cca tcc cgc aac acc atc gag gag gtg	2304
Ile Tyr Ile Ile Leu Phe Lys Pro Ser Arg Asn Thr Ile Glu Glu Val	
755 760 765	
cgt tgc agc acc gca gct cac gct ttc aag gtg gct gcc cgg gcc acg	2352
Arg Cys Ser Thr Ala Ala His Ala Phe Lys Val Ala Ala Arg Ala Thr	
770 775 780	
ctg cgc cgc agc aac gtc tcc cgc aag cgg tcc agc agc ctt gga ggc	2400
Leu Arg Arg Ser Asn Val Ser Arg Lys Arg Ser Ser Ser Leu Gly Gly	
785 790 795 800	
tcc acg gga tcc acc cct tcc tcc tcc atc agc agc aag agc aac agc	2448
Ser Thr Gly Ser Thr Pro Ser Ser Ser Ile Ser Ser Lys Ser Asn Ser	
805 810 815	
gaa gac cca ttc cca cag ccc gag agg cag aag cag cag cag ccg ctg	2496
Glu Asp Pro Phe Pro Gln Pro Glu Arg Gln Lys Gln Gln Gln Pro Leu	
820 825 830	
gcc cta acc cag caa gag cag cag cag cag ccc ctg acc ctc cca cag	2544
Ala Leu Thr Gln Gln Glu Gln Gln Gln Gln Pro Leu Thr Leu Pro Gln	
835 840 845	
cag caa cga tct cag cag cag ccc aga tgc aag cag aag gtc atc ttt	2592
Gln Gln Arg Ser Gln Gln Gln Pro Arg Cys Lys Gln Lys Val Ile Phe	
850 855 860	
ggc agc ggc acg gtc acc ttc tca ctg agc ttt gat gag cct cag aag	2640
Gly Ser Gly Thr Val Thr Phe Ser Leu Ser Phe Asp Glu Pro Gln Lys	
865 870 875 880	
aac gcc atg gcc cac agg aat tct acg cac cag aac tcc ctg gag gcc	2688
Asn Ala Met Ala His Arg Asn Ser Thr His Gln Asn Ser Leu Glu Ala	
885 890 895	
cag aaa agc agc gat acg ctg acc cga cac cag cca tta ctc ccg ctg	2736
Gln Lys Ser Ser Asp Thr Leu Thr Arg His Gln Pro Leu Leu Pro Leu	
900 905 910	



cag tgc ggg gaa acg gac tta gat ctg acc gtc cag gaa aca ggt ctg 2784  
Gln Cys Gly Glu Thr Asp Leu Asp Leu Thr Val Gln Glu Thr Gly Leu  
915 920 925

caa gga cct gtg ggt gga gac cag cgg cca gag gtg gag gac cct gaa 2832  
Gln Gly Pro Val Gly Gly Asp Gln Arg Pro Glu Val Glu Asp Pro Glu  
930 935 940

gag ttg tcc cca gca ctt gta gtg tcc agt tca cag agc ttt gtc atc 2880  
Glu Leu Ser Pro Ala Leu Val Val Ser Ser Ser Gln Ser Phe Val Ile  
945 950 955 960

agt ggt gga ggc agc act gtt aca gaa aac gta gtg aat tca 2922  
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Ile Leu Gly Gly Leu Phe Pro Ile His Phe Gly Val Ala Ala Lys Asp  
35 40 45

Gln Asp Leu Lys Ser Arg Pro Glu Ser Val Glu Cys Ile Arg Tyr Asn  
50 55 60

Phe Arg Gly Phe Arg Trp Leu Gln Ala Met Ile Phe Ala Ile Glu Glu  
65 70 75 80

Ile Asn Ser Ser Pro Ala Leu Leu Pro Asn Leu Thr Leu Gly Tyr Arg  
85 90 95

Ile Phe Asp Thr Cys Asn Thr Val Ser Lys Ala Leu Glu Ala Thr Leu  
100 105 110

Ser Phe Val Ala Gln Asn Lys Ile Asp Ser Leu Asn Leu Asp Glu Phe  
115 120 125

Cys	Asn	Cys	Ser	Glu	His	Ile	Pro	Ser	Thr	Ile	Ala	Val	Val	Gly	Ala	130	135	140
Thr	Gly	Ser	Gly	Val	Ser	Thr	Ala	Val	Ala	Asn	Leu	Leu	Gly	Leu	Phe	145	150	155 160
Tyr	Ile	Pro	Gln	Val	Ser	Tyr	Ala	Ser	Ser	Ser	Arg	Leu	Leu	Ser	Asn	165	170	175
Lys	Asn	Gln	Phe	Lys	Ser	Phe	Leu	Arg	Thr	Ile	Pro	Asn	Asp	Glu	His	180	185	190
Gln	Ala	Thr	Ala	Met	Ala	Asp	Ile	Ile	Glu	Tyr	Phe	Arg	Trp	Asn	Trp	195	200	205
Val	Gly	Thr	Ile	Ala	Ala	Asp	Asp	Asp	Tyr	Gly	Arg	Pro	Gly	Ile	Glu	210	215	220
Lys	Phe	Arg	Glu	Glu	Ala	Glu	Glu	Arg	Asp	Ile	Cys	Ile	Asp	Phe	Ser	225	230	235 240
Glu	Leu	Ile	Ser	Gln	Tyr	Ser	Asp	Glu	Glu	Glu	Ile	Gln	His	Val	Val	245	250	255
Glu	Val	Ile	Gln	Asn	Ser	Thr	Ala	Lys	Val	Ile	Val	Val	Phe	Ser	Ser	260	265	270
Gly	Pro	Asp	Leu	Glu	Pro	Leu	Ile	Lys	Glu	Ile	Val	Arg	Arg	Asn	Ile	275	280	285
Thr	Gly	Lys	Ile	Trp	Leu	Ala	Ser	Glu	Ala	Trp	Ala	Ser	Ser	Ser	Leu	290	295	300
Ile	Ala	Met	Pro	Gln	Tyr	Phe	His	Val	Val	Gly	Gly	Thr	Ile	Gly	Phe	305	310	315 320
Ala	Leu	Lys	Ala	Gly	Gln	Ile	Pro	Gly	Phe	Arg	Glu	Phe	Leu	Lys	Lys	325	330	335
Val	His	Pro	Arg	Lys	Ser	Val	His	Asn	Gly	Phe	Ala	Lys	Glu	Phe	Trp	340	345	350
Glu	Glu	Thr	Phe	Asn	Cys	His	Leu	Arg	His	Leu	Asn	Phe	Thr	Asn	Asn	355	360	365
Met	Gly	Glu	Gln	Val	Thr	Phe	Asp	Glu	Cys	Gly	Asp	Leu	Val	Gly	Asn	370	375	380

Tyr Ser Ile Ile Asn Trp His Leu Ser Pro Glu Asp Gly Ser Ile Val  
 385 390 395 400  
 Phe Lys Glu Val Gly Tyr Tyr Asn Val Tyr Ala Lys Lys Gly Glu Arg  
 405 410 415  
 Leu Phe Ile Asn Glu Glu Lys Ile Leu Trp Ser Gly Phe Ser Arg Glu  
 420 425 430  
 Val Pro Phe Ser Asn Cys Ser Arg Asp Cys Leu Ala Gly Thr Arg Lys  
 435 440 445  
 Gly Ile Ile Glu Gly Glu Pro Thr Cys Cys Phe Glu Cys Val Glu Cys  
 450 455 460  
 Pro Asp Gly Glu Tyr Ser Asp Glu Thr Asp Ala Ser Ala Cys Asn Lys  
 465 470 475 480  
 Cys Pro Asp Asp Phe Trp Ser Asn Glu Asn His Thr Ser Cys Ile Ala  
 485 490 495  
 Lys Glu Ile Glu Phe Leu Ser Trp Thr Glu Pro Phe Gly Ile Ala Leu  
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 Thr Leu Phe Ala Val Leu Gly Ile Phe Leu Thr Ala Phe Val Leu Gly  
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 Val Phe Ile Lys Phe Arg Asn Thr Pro Ile Val Lys Ala Thr Asn Arg  
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 Glu Leu Ser Tyr Leu Leu Leu Phe Ser Leu Leu Cys Cys Phe Ser Ser  
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 Ser Leu Phe Phe Ile Gly Glu Pro Gln Asp Trp Thr Cys Arg Leu Arg  
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 Gln Pro Ala Phe Gly Ile Ser Phe Val Leu Cys Ile Ser Cys Ile Leu  
 580 585 590  
 Val Lys Thr Asn Arg Val Leu Leu Val Phe Glu Ala Lys Ile Pro Thr  
 595 600 605  
 Ser Phe His Arg Lys Trp Trp Gly Leu Asn Leu Gln Phe Leu Leu Val  
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 Phe Leu Cys Thr Phe Met Gln Ile Val Ile Cys Val Ile Trp Leu Tyr  
 625 630 635 640

Thr Ala Pro Pro Ser Ser Tyr Arg Asn Gln Glu Leu Glu Asp Glu Ile  
 645 650 655

Ile Phe Ile Thr Cys His Glu Gly Ser Leu Met Ala Leu Gly Phe Leu  
 660 665 670

Ile Gly Tyr Thr Cys Leu Leu Ala Ala Ile Cys Phe Phe Phe Ala Phe  
 675 680 685

Lys Ser Arg Lys Leu Pro Glu Asn Phe Asn Glu Ala Lys Phe Ile Thr  
 690 695 700

Phe Ser Met Leu Ile Phe Phe Ile Val Trp Ile Ser Phe Ile Pro Ala  
 705 710 715 720

Tyr Ala Ser Thr Tyr Gly Lys Phe Val Ser Ala Val Glu Val Ile Ala  
 725 730 735

Ile Leu Ala Ala Ser Phe Gly Leu Leu Ala Cys Ile Phe Phe Asn Lys  
 740 745 750

Ile Tyr Ile Ile Leu Phe Lys Pro Ser Arg Asn Thr Ile Glu Glu Val  
 755 760 765

Arg Cys Ser Thr Ala Ala His Ala Phe Lys Val Ala Ala Arg Ala Thr  
 770 775 780

Leu Arg Arg Ser Asn Val Ser Arg Lys Arg Ser Ser Ser Leu Gly Gly  
 785 790 795 800

Ser Thr Gly Ser Thr Pro Ser Ser Ser Ile Ser Ser Lys Ser Asn Ser  
 805 810 815

Glu Asp Pro Phe Pro Gln Pro Glu Arg Gln Lys Gln Gln Gln Pro Leu  
 820 825 830

Ala Leu Thr Gln Gln Glu Gln Gln Gln Gln Pro Leu Thr Leu Pro Gln  
 835 840 845

Gln Gln Arg Ser Gln Gln Gln Pro Arg Cys Lys Gln Lys Val Ile Phe  
 850 855 860

Gly Ser Gly Thr Val Thr Phe Ser Leu Ser Phe Asp Glu Pro Gln Lys  
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Asn Ala Met Ala His Arg Asn Ser Thr His Gln Asn Ser Leu Glu Ala  
 885 890 895

Gln Lys Ser Ser Asp Thr Leu Thr Arg His Gln Pro Leu Leu Pro Leu  
 900 905 910

Gln Cys Gly Glu Thr Asp Leu Asp Leu Thr Val Gln Glu Thr Gly Leu  
 915 920 925

Gln Gly Pro Val Gly Gly Asp Gln Arg Pro Glu Val Glu Asp Pro Glu  
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Glu Leu Ser Pro Ala Leu Val Val Ser Ser Ser Gln Ser Phe Val Ile  
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acc tct gcc tac ggg cca gac cag cga gcc caa aag aag ggg gac att 96  
 Thr Ser Ala Tyr Gly Pro Asp Gln Arg Ala Gln Lys Lys Gly Asp Ile  
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atc ctt ggg ggg ctc ttt cct att cat ttt gga gta gca gct aaa gat 144  
 Ile Leu Gly Gly Leu Phe Pro Ile His Phe Gly Val Ala Ala Lys Asp  
 35 40 45

caa gat ctc aaa tca agg ccg gag tct gtg gaa tgt atc agg tat aat 192  
 Gln Asp Leu Lys Ser Arg Pro Glu Ser Val Glu Cys Ile Arg Tyr Asn  
 50 55 60

ttc cgt ggg ttt cgc tgg tta cag gct atg ata ttt gcc ata gag gag 240  
 Phe Arg Gly Phe Arg Trp Leu Gln Ala Met Ile Phe Ala Ile Glu Glu  
 65 70 75 80

ata aac agc agc cca gcc ctt ctt ccc aac ttg acg ctg gga tac agg 288

Ile	Asn	Ser	Ser	Pro	Ala	Leu	Leu	Pro	Asn	Leu	Thr	Leu	Gly	Tyr	Arg	
				85					90					95		
ata	ttt	gac	act	tgc	aac	acc	gtt	tct	aag	gcc	ttg	gaa	gcc	acc	ctg	336
Ile	Phe	Asp	Thr	Cys	Asn	Thr	Val	Ser	Lys	Ala	Leu	Glu	Ala	Thr	Leu	
			100					105					110			
agt	ttt	gtt	gct	caa	aac	aaa	att	gat	tct	ttg	aac	ctt	gat	gag	ttc	384
Ser	Phe	Val	Ala	Gln	Asn	Lys	Ile	Asp	Ser	Leu	Asn	Leu	Asp	Glu	Phe	
			115				120					125				
tgc	aac	tgc	tca	gag	cac	att	ccc	tct	acg	att	gct	gtg	gtg	gga	gca	432
Cys	Asn	Cys	Ser	Glu	His	Ile	Pro	Ser	Thr	Ile	Ala	Val	Val	Gly	Ala	
			130			135					140					
act	ggc	tca	ggc	gtc	tcc	acg	gca	gtg	gca	aat	ctg	ctg	ggg	ctc	ttc	480
Thr	Gly	Ser	Gly	Val	Ser	Thr	Ala	Val	Ala	Asn	Leu	Leu	Gly	Leu	Phe	
	145				150				155					160		
tac	att	ccc	cag	gtc	agt	tat	gcc	tcc	tcc	agc	aga	ctc	ctc	agc	aac	528
Tyr	Ile	Pro	Gln	Val	Ser	Tyr	Ala	Ser	Ser	Ser	Arg	Leu	Leu	Ser	Asn	
			165					170						175		
aag	aat	caa	ttc	aag	tct	ttc	ctc	cga	acc	atc	ccc	aat	gat	gag	cac	576
Lys	Asn	Gln	Phe	Lys	Ser	Phe	Leu	Arg	Thr	Ile	Pro	Asn	Asp	Glu	His	
			180					185					190			
cag	gcc	act	gcc	atg	gca	gac	atc	atc	gag	tat	ttc	cgc	tgg	aac	tgg	624
Gln	Ala	Thr	Ala	Met	Ala	Asp	Ile	Ile	Glu	Tyr	Phe	Arg	Trp	Asn	Trp	
			195				200					205				
gtg	ggc	aca	att	gca	gct	gat	gac	gac	tat	ggg	cgg	ccg	ggg	att	gag	672
Val	Gly	Thr	Ile	Ala	Ala	Asp	Asp	Asp	Tyr	Gly	Arg	Pro	Gly	Ile	Glu	
			210			215					220					
aaa	ttc	cga	gag	gaa	gct	gag	gaa	agg	gat	atc	tgc	atc	gac	ttc	agt	720
Lys	Phe	Arg	Glu	Glu	Ala	Glu	Glu	Arg	Asp	Ile	Cys	Ile	Asp	Phe	Ser	
			225			230				235				240		
gaa	ctc	atc	tcc	cag	tac	tct	gat	gag	gaa	gag	atc	cag	cat	gtg	gta	768
Glu	Leu	Ile	Ser	Gln	Tyr	Ser	Asp	Glu	Glu	Glu	Ile	Gln	His	Val	Val	
			245					250						255		
gag	gtg	att	caa	aat	tcc	acg	gcc	aaa	gtc	atc	gtg	gtt	ttc	tcc	agt	816
Glu	Val	Ile	Gln	Asn	Ser	Thr	Ala	Lys	Val	Ile	Val	Val	Phe	Ser	Ser	
			260					265					270			
ggc	cca	gat	ctt	gag	ccc	ctc	atc	aag	gag	att	gtc	cgg	cgc	aat	atc	864

Gly	Pro	Asp	Leu	Glu	Pro	Leu	Ile	Lys	Glu	Ile	Val	Arg	Arg	Asn	Ile		
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Thr	Gly	Lys	Ile	Trp	Leu	Ala	Ser	Glu	Ala	Trp	Ala	Ser	Ser	Ser	Leu		
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atc	gcc	atg	cct	cag	tac	ttc	cac	gtg	gtt	ggc	ggc	acc	att	gga	ttc	960	
Ile	Ala	Met	Pro	Gln	Tyr	Phe	His	Val	Val	Gly	Gly	Thr	Ile	Gly	Phe		
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Ala	Leu	Lys	Ala	Gly	Gln	Ile	Pro	Gly	Phe	Arg	Glu	Phe	Leu	Lys	Lys		
				325					330					335			
gtc	cat	ccc	agg	aag	tct	gtc	cac	aat	ggc	ttt	gcc	aag	gag	ttt	tgg	1056	
Val	His	Pro	Arg	Lys	Ser	Val	His	Asn	Gly	Phe	Ala	Lys	Glu	Phe	Trp		
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Glu	Glu	Thr	Phe	Asn	Cys	His	Leu	Gln	Glu	Gly	Ala	Lys	Gly	Pro	Leu		
		355					360					365					
cct	gtg	gac	acc	ttt	ctg	aga	ggc	cac	gaa	gaa	agt	ggc	gac	agg	ttt	1152	
Pro	Val	Asp	Thr	Phe	Leu	Arg	Gly	His	Glu	Glu	Ser	Gly	Asp	Arg	Phe		
	370					375					380						
agc	aac	agc	tcg	aca	gcc	ttc	cga	ccc	ctc	tgt	aca	ggg	gat	gag	aac	1200	
Ser	Asn	Ser	Ser	Thr	Ala	Phe	Arg	Pro	Leu	Cys	Thr	Gly	Asp	Glu	Asn		
385					390					395					400		
atc	agc	agt	gtc	gag	acc	cct	tac	ata	gat	tac	acg	cat	tta	cgg	ata	1248	
Ile	Ser	Ser	Val	Glu	Thr	Pro	Tyr	Ile	Asp	Tyr	Thr	His	Leu	Arg	Ile		
			405					410					415				
tcc	tac	aat	gtg	tac	tta	gca	gtc	tac	tcc	att	gcc	cac	gcc	ttg	caa	1296	
Ser	Tyr	Asn	Val	Tyr	Leu	Ala	Val	Tyr	Ser	Ile	Ala	His	Ala	Leu	Gln		
			420					425					430				
gat	ata	tat	acc	tgc	tta	cct	ggg	aga	ggg	ctc	ttc	acc	aat	ggc	tcc	1344	
Asp	Ile	Tyr	Thr	Cys	Leu	Pro	Gly	Arg	Gly	Leu	Phe	Thr	Asn	Gly	Ser		
		435					440					445					
tgt	gca	gac	atc	aag	aaa	gtt	gag	gcg	tgg	cag	gtc	ctg	aag	cac	cta	1392	
Cys	Ala	Asp	Ile	Lys	Lys	Val	Glu	Ala	Trp	Gln	Val	Leu	Lys	His	Leu		
	450					455					460						
cgg	cat	cta	aac	ttt	aca	aac	aat	atg	ggg	gag	cag	gtg	acc	ttt	gat	1440	

Arg His Leu Asn Phe Thr Asn Asn Met Gly Glu Gln Val Thr Phe Asp	
465	470 475 480
gag tgt ggt gac ctg gtg ggg aac tat tcc atc atc aac tgg cac ctc	1488
Glu Cys Gly Asp Leu Val Gly Asn Tyr Ser Ile Ile Asn Trp His Leu	
485	490 495
tcc cca gag gat ggc tcc atc gtg ttt aag gaa gtc ggg tat tac aac	1536
Ser Pro Glu Asp Gly Ser Ile Val Phe Lys Glu Val Gly Tyr Tyr Asn	
500	505 510
gtc tat gcc aag aag gga gaa aga ctc ttc atc aac gag gag aaa atc	1584
Val Tyr Ala Lys Lys Gly Glu Arg Leu Phe Ile Asn Glu Glu Lys Ile	
515	520 525
ctg tgg agt ggg ttc tcc agg gag gtg ccc ttc tcc aac tgc agc cga	1632
Leu Trp Ser Gly Phe Ser Arg Glu Val Pro Phe Ser Asn Cys Ser Arg	
530	535 540
gac tgc ctg gca ggg acc agg aaa ggg atc att gag ggg gag ccc acc	1680
Asp Cys Leu Ala Gly Thr Arg Lys Gly Ile Ile Glu Gly Glu Pro Thr	
545	550 555 560
tgc tgc ttt gag tgt gtg gag tgt cct gat ggg gag tat agt gat gag	1728
Cys Cys Phe Glu Cys Val Glu Cys Pro Asp Gly Glu Tyr Ser Asp Glu	
565	570 575
aca gat gcc agt gcc tgt aac aag tgc cca gat gac ttc tgg tcc aat	1776
Thr Asp Ala Ser Ala Cys Asn Lys Cys Pro Asp Asp Phe Trp Ser Asn	
580	585 590
gag aac cac acc tcc tgc att gcc aag gag atc gag ttt ctg tcg tgg	1824
Glu Asn His Thr Ser Cys Ile Ala Lys Glu Ile Glu Phe Leu Ser Trp	
595	600 605
acg gag ccc ttt ggg atc gca ctc acc ctc ttt gcc gtg ctg ggc att	1872
Thr Glu Pro Phe Gly Ile Ala Leu Thr Leu Phe Ala Val Leu Gly Ile	
610	615 620
ttc ctg aca gcc ttt gtg ctg ggt gtg ttt atc aag ttc cgc aac aca	1920
Phe Leu Thr Ala Phe Val Leu Gly Val Phe Ile Lys Phe Arg Asn Thr	
625	630 635 640
ccc att gtc aag gcc acc aac cga gag ctc tcc tac ctc ctc ctc ttc	1968
Pro Ile Val Lys Ala Thr Asn Arg Glu Leu Ser Tyr Leu Leu Leu Phe	
645	650 655
tcc ctg ctc tgc tgc ttc tcc agc tcc ctg ttc ttc atc ggg gag ccc	2016



Ser Leu Leu Cys Cys Phe Ser Ser Ser Leu Phe Phe Ile Gly Glu Pro	
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cag gac tgg acg tgc cgc ctg cgc cag ccg gcc ttt ggc atc agc ttc	2064
Gln Asp Trp Thr Cys Arg Leu Arg Gln Pro Ala Phe Gly Ile Ser Phe	
675 680 685	
gtg ctc tgc atc tca tgc atc ctg gtg aaa acc aac cgt gtc ctc ctg	2112
Val Leu Cys Ile Ser Cys Ile Leu Val Lys Thr Asn Arg Val Leu Leu	
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Val Phe Glu Ala Lys Ile Pro Thr Ser Phe His Arg Lys Trp Trp Gly	
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ctc aac ctg cag ttc ctg ctg gtt ttc ctc tgc acc ttc atg cag att	2208
Leu Asn Leu Gln Phe Leu Leu Val Phe Leu Cys Thr Phe Met Gln Ile	
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Val Ile Cys Val Ile Trp Leu Tyr Thr Ala Pro Pro Ser Ser Tyr Arg	
740 745 750	
aac cag gag ctg gag gat gag atc atc ttc atc acg tgc cac gag ggc	2304
Asn Gln Glu Leu Glu Asp Glu Ile Ile Phe Ile Thr Cys His Glu Gly	
755 760 765	
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Ser Leu Met Ala Leu Gly Phe Leu Ile Gly Tyr Thr Cys Leu Leu Ala	
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Ala Ile Cys Phe Phe Phe Ala Phe Lys Ser Arg Lys Leu Pro Glu Asn	
785 790 795 800	
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Phe Asn Glu Ala Lys Phe Ile Thr Phe Ser Met Leu Ile Phe Phe Ile	
805 810 815	
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Val Trp Ile Ser Phe Ile Pro Ala Tyr Ala Ser Thr Tyr Gly Lys Phe	
820 825 830	
gtc tct gcc gta gag gtg att gcc atc ctg gca gcc agc ttt ggc ttg	2544
Val Ser Ala Val Glu Val Ile Ala Ile Leu Ala Ala Ser Phe Gly Leu	
835 840 845	
ctg gcg tgc atc ttc ttc aac aag atc tac atc att ctc ttc aag cca	2592

Leu	Ala	Cys	Ile	Phe	Phe	Asn	Lys	Ile	Tyr	Ile	Ile	Leu	Phe	Lys	Pro		
850						855					860						
tcc	cgc	aac	acc	atc	gag	gag	gtg	cgt	tgc	agc	acc	gca	gct	cac	gct	2640	
Ser	Arg	Asn	Thr	Ile	Glu	Glu	Val	Arg	Cys	Ser	Thr	Ala	Ala	His	Ala		
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Phe	Lys	Val	Ala	Ala	Arg	Ala	Thr	Leu	Arg	Arg	Ser	Asn	Val	Ser	Arg		
				885					890					895			
aag	cgg	tcc	agc	agc	ctt	gga	ggc	tcc	acg	gga	tcc	acc	cct	tcc	tcc	2736	
Lys	Arg	Ser	Ser	Ser	Leu	Gly	Gly	Ser	Thr	Gly	Ser	Thr	Pro	Ser	Ser		
			900					905					910				
tcc	atc	agc	agc	aag	agc	aac	agc	gaa	gac	cca	ttc	cca	cag	ccc	gag	2784	
Ser	Ile	Ser	Ser	Lys	Ser	Asn	Ser	Glu	Asp	Pro	Phe	Pro	Gln	Pro	Glu		
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Arg	Gln	Lys	Gln	Gln	Gln	Pro	Leu	Ala	Leu	Thr	Gln	Gln	Glu	Gln	Gln		
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cag	cag	ccc	ctg	acc	ctc	cca	cag	cag	caa	cga	tct	cag	cag	cag	ccc	2880	
Gln	Gln	Pro	Leu	Thr	Leu	Pro	Gln	Gln	Gln	Arg	Ser	Gln	Gln	Gln	Pro		
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Arg	Cys	Lys	Gln	Lys	Val	Ile	Phe	Gly	Ser	Gly	Thr	Val	Thr	Phe	Ser		
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Leu	Ser	Phe	Asp	Glu	Pro	Gln	Lys	Asn	Ala	Met	Ala	His	Arg	Asn	Ser		
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Thr	His	Gln	Asn	Ser	Leu	Glu	Ala	Gln	Lys	Ser	Ser	Asp	Thr	Leu	Thr		
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cga	cac	cag	cca	tta	ctc	ccg	ctg	cag	tgc	ggg	gaa	acg	gac	tta	gat	3072	
Arg	His	Gln	Pro	Leu	Leu	Pro	Leu	Gln	Cys	Gly	Glu	Thr	Asp	Leu	Asp		
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ctg	acc	gtc	cag	gaa	aca	ggg	ctg	caa	gga	cct	gtg	ggg	gga	gac	cag	3120	
Leu	Thr	Val	Gln	Glu	Thr	Gly	Leu	Gln	Gly	Pro	Val	Gly	Gly	Asp	Gln		
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Arg Pro Glu Val Glu Asp Pro Glu Glu Leu Ser Pro Ala Leu Val Val  
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<400> 12

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Ile Leu Gly Gly Leu Phe Pro Ile His Phe Gly Val Ala Ala Lys Asp  
 35 40 45

Gln Asp Leu Lys Ser Arg Pro Glu Ser Val Glu Cys Ile Arg Tyr Asn  
 50 55 60

Phe Arg Gly Phe Arg Trp Leu Gln Ala Met Ile Phe Ala Ile Glu Glu  
 65 70 75 80

Ile Asn Ser Ser Pro Ala Leu Leu Pro Asn Leu Thr Leu Gly Tyr Arg  
 85 90 95

Ile Phe Asp Thr Cys Asn Thr Val Ser Lys Ala Leu Glu Ala Thr Leu  
 100 105 110

Ser Phe Val Ala Gln Asn Lys Ile Asp Ser Leu Asn Leu Asp Glu Phe  
 115 120 125

Cys Asn Cys Ser Glu His Ile Pro Ser Thr Ile Ala Val Val Gly Ala  
 130 135 140

Thr Gly Ser Gly Val Ser Thr Ala Val Ala Asn Leu Leu Gly Leu Phe  
 145 150 155 160

Tyr Ile Pro Gln Val Ser Tyr Ala Ser Ser Ser Arg Leu Leu Ser Asn  
 165 170 175  
 Lys Asn Gln Phe Lys Ser Phe Leu Arg Thr Ile Pro Asn Asp Glu His  
 180 185 190  
 Gln Ala Thr Ala Met Ala Asp Ile Ile Glu Tyr Phe Arg Trp Asn Trp  
 195 200 205  
 Val Gly Thr Ile Ala Ala Asp Asp Asp Tyr Gly Arg Pro Gly Ile Glu  
 210 215 220  
 Lys Phe Arg Glu Glu Ala Glu Glu Arg Asp Ile Cys Ile Asp Phe Ser  
 225 230 235 240  
 Glu Leu Ile Ser Gln Tyr Ser Asp Glu Glu Glu Ile Gln His Val Val  
 245 250 255  
 Glu Val Ile Gln Asn Ser Thr Ala Lys Val Ile Val Val Phe Ser Ser  
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 Gly Pro Asp Leu Glu Pro Leu Ile Lys Glu Ile Val Arg Arg Asn Ile  
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 Thr Gly Lys Ile Trp Leu Ala Ser Glu Ala Trp Ala Ser Ser Ser Leu  
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 Ile Ala Met Pro Gln Tyr Phe His Val Val Gly Gly Thr Ile Gly Phe  
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 Val His Pro Arg Lys Ser Val His Asn Gly Phe Ala Lys Glu Phe Trp  
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 Glu Glu Thr Phe Asn Cys His Leu Gln Glu Gly Ala Lys Gly Pro Leu  
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 Pro Val Asp Thr Phe Leu Arg Gly His Glu Glu Ser Gly Asp Arg Phe  
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 Ser Asn Ser Ser Thr Ala Phe Arg Pro Leu Cys Thr Gly Asp Glu Asn  
 385 390 395 400  
 Ile Ser Ser Val Glu Thr Pro Tyr Ile Asp Tyr Thr His Leu Arg Ile  
 405 410 415

Ser Tyr Asn Val Tyr Leu Ala Val Tyr Ser Ile Ala His Ala Leu Gln  
 420 425 430

Asp Ile Tyr Thr Cys Leu Pro Gly Arg Gly Leu Phe Thr Asn Gly Ser  
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Cys Ala Asp Ile Lys Lys Val Glu Ala Trp Gln Val Leu Lys His Leu  
 450 455 460

Arg His Leu Asn Phe Thr Asn Asn Met Gly Glu Gln Val Thr Phe Asp  
 465 470 475 480

Glu Cys Gly Asp Leu Val Gly Asn Tyr Ser Ile Ile Asn Trp His Leu  
 485 490 495

Ser Pro Glu Asp Gly Ser Ile Val Phe Lys Glu Val Gly Tyr Tyr Asn  
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Val Tyr Ala Lys Lys Gly Glu Arg Leu Phe Ile Asn Glu Glu Lys Ile  
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Leu Trp Ser Gly Phe Ser Arg Glu Val Pro Phe Ser Asn Cys Ser Arg  
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Thr Glu Pro Phe Gly Ile Ala Leu Thr Leu Phe Ala Val Leu Gly Ile  
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Phe Leu Thr Ala Phe Val Leu Gly Val Phe Ile Lys Phe Arg Asn Thr  
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Pro Ile Val Lys Ala Thr Asn Arg Glu Leu Ser Tyr Leu Leu Leu Phe  
 645 650 655

Ser Leu Leu Cys Cys Phe Ser Ser Ser Leu Phe Phe Ile Gly Glu Pro  
 660 665 670

Gln Asp Trp Thr Cys Arg Leu Arg Gln Pro Ala Phe Gly Ile Ser Phe  
 675 680 685

Val Leu Cys Ile Ser Cys Ile Leu Val Lys Thr Asn Arg Val Leu Leu  
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Val Phe Glu Ala Lys Ile Pro Thr Ser Phe His Arg Lys Trp Trp Gly  
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Leu Asn Leu Gln Phe Leu Leu Val Phe Leu Cys Thr Phe Met Gln Ile  
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Val Ser Ala Val Glu Val Ile Ala Ile Leu Ala Ala Ser Phe Gly Leu  
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Leu Ala Cys Ile Phe Phe Asn Lys Ile Tyr Ile Ile Leu Phe Lys Pro  
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Ser Arg Asn Thr Ile Glu Glu Val Arg Cys Ser Thr Ala Ala His Ala  
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Phe Lys Val Ala Ala Arg Ala Thr Leu Arg Arg Ser Asn Val Ser Arg  
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Lys Arg Ser Ser Ser Leu Gly Gly Ser Thr Gly Ser Thr Pro Ser Ser  
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Ser Ile Ser Ser Lys Ser Asn Ser Glu Asp Pro Phe Pro Gln Pro Glu  
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Arg Cys Lys Gln Lys Val Ile Phe Gly Ser Gly Thr Val Thr Phe Ser  
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Leu Ser Phe Asp Glu Pro Gln Lys Asn Ala Met Ala His Arg Asn Ser  
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Thr His Gln Asn Ser Leu Glu Ala Gln Lys Ser Ser Asp Thr Leu Thr  
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Arg His Gln Pro Leu Leu Pro Leu Gln Cys Gly Glu Thr Asp Leu Asp  
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Leu Thr Val Gln Glu Thr Gly Leu Gln Gly Pro Val Gly Gly Asp Gln  
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Arg Pro Glu Val Glu Asp Pro Glu Glu Leu Ser Pro Ala Leu Val Val  
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Ser Ser Ser Gln Ser Phe Val Ile Ser Gly Gly Gly Ser Thr Val Thr  
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